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PART IV.—EDUCATION, SCIENCE, AND ART (C).

Administration Report of the Director of Medical and Sanitary Services for 1943.

(Dr. S. F. CHELLAPPAH.)

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DEPARTMENT OF MEDICAL AND SANITARY SERVICES.

ADMINISTRATION REPORT OF THE DIRECTOR OF MEDICAL AND SANITARY SERVICES FOR 1943.

SECTION 1.—VITAL STATISTICS.

The Registrar-General has furnished the following figures:—

Estimated population for mid-year, 1943	..	..	6,134,000
Total births	..	..	248,820
Birth rate	..	..	40.6
Total deaths	..	..	131,061
Death rate	..	..	21.4
Infant deaths	..	..	32,851
Infant death rate	..	..	132
Maternal deaths	..	..	3,321
Maternal death rate	..	..	13.3

Table of the Main Causes of Deaths registered in Ceylon for 1943.

<i>All Causes</i>	..	..	131,061
<i>I. Infectious and Parasitic Diseases</i>	..	..	23,410
Typhoid fever and paratyphoid fever	..	..	1,150
Diphtheria	..	..	66
Influenza	..	..	2,153
Dysentery	..	..	2,217
Tuberculosis of the Respiratory system	..	..	3,174
Tuberculosis of other organs	..	..	347
Disseminated Tuberculosis	Acute	..	10
	Unspecified	..	1
Malarial Fever and Malarial Cachexia	..	..	6,752
Black water fever	..	..	13
Ankylostomiasis	..	..	1,461
<i>II. Cancer and other Tumours</i>	..	..	803
Cancer and other malignant tumours	..	..	765
<i>III. Rheumatic Diseases, Nutritional Diseases, Diseases of the Endocrine Glands, and other General Diseases</i>	..	..	9,595
Acute rheumatic fever	..	..	2,420
* Rickets	..	..	452
* Mandama	..	..	5,936
<i>IV. Diseases of the Blood and Blood-making Organs</i>	..	..	2,690
<i>V. Chronic Poisonings and Intoxications</i>	..	..	7
<i>VI. Diseases of the Nervous System and of the Organs of Special Sense</i>	..	..	15,383
Infantile convulsions (age under 5 years)	..	..	11,827
<i>VII. Diseases of the Circulatory System</i>	..	..	3,126
<i>VIII. Diseases of the Respiratory System</i>	..	..	13,275
Bronchitis	..	..	1,687
Broncho-pneumonia (including Capillary Bronchitis)	..	..	2,101
Lobar Pneumonia	..	..	2059
Pneumonia, unspecified	..	..	3,959
<i>IX. Diseases of the Digestive System</i>	..	..	10,173
Diarrhoea and enteritis (under 2 years of age)	..	..	1,645
Do. (2 years and over)	..	..	6,449
<i>X. Non-Venereal Diseases of the Genito-Urinary System and Annexa</i>	..	..	1,956
<i>XI. Diseases of Pregnancy, Child-Birth and the Puerperal State</i>	..	..	3,321
Puerperal Haemorrhage	..	..	272
Puerperal Sepsis, not returned as post-abortive	..	..	901
Puerperal Albuminuria and Convulsions	..	..	1,543
* <i>XII. Diseases of the Skin and Cellular Tissue</i>	..	..	1,471
<i>XIII. Diseases of the Bones and Organs of Locomotion</i>	..	..	54
<i>XIV. Congenital Malformations</i>	..	..	123
* <i>XV. Diseases of Early Infancy</i>	..	..	17,342
Congenital debility	..	..	5,317
Premature birth	..	..	3,647
<i>XVI. Old age</i>	..	..	8,151
<i>XVII. Violent and Accidental Deaths</i>	..	..	3,461
<i>XVIII. Ill-defined Causes of Deaths</i>	..	..	16,720
Cause of death unstated or ill-defined—			
(a) Dropsy	..	..	2,369
(b) Pyrexia	..	..	13,207

* In previous years Mandama deaths were included under Rickets in Item III. Deaths due to "Rathe" which used to be included under item XII. are now included in Item XV.

SECTION 2.—GENERAL DISEASES.

As in previous years malaria continued to be the most prevalent disease. 57,766 cases were treated as in-patients in hospitals and 1,975,617 cases at the out-door dispensaries. Other diseases which prevailed during the year included influenza, rheumatism, bronchitis, pneumonia, dysentery, diarrhoea, tuberculosis, ankylostomiasis and intestinal affections.

A summary of the most prevalent diseases is shown in the following table:—

TABLE OF MORBIDITY IN RESPECT OF IN-PATIENTS AND OF OUT-PATIENTS.

(a) Table of Morbidity in respect of In-patients, 1943.

Diseases.	No. of Cases.
Enteric	3,721
Malaria	57,766
Malarial Cachexia	3,683
Influenza	10,756
Dysentery	6,338
Tuberculosis	5,788
Syphilis	1,847
Gonorrhoea	2,339
Cancer	2,101
Chronic Rheumatism	2,949
Affections of the Eye	7,594
Bronchitis	7,379
Broncho-pneumonia and Pneumonia	14,506
Asthma	2,515
Diarrhoea	5,555
Ankylostomiasis	8,311
Ascariasis	1,499
Abscess	7,741
Diseases of joints	1,400

(b) Table of Morbidity in respect of Out-patients, 1943.

Diseases.	No. of Cases.
Malaria	1,975,617
Malarial Cachexia	104,263
Influenza	356,835
Dysentery	21,709
Syphilis	2,093
Gonorrhoea	5,644
Chronic Rheumatism	27,248
Ear Diseases	42,625
Diseases of the Lungs and Pleura	340,827
Gastric Diseases	674,123
Skin Diseases	216,454
Ulcers	454,472
Eye Diseases	77,109
Ankylostomiasis	192,944
Intestinal Troubles	388,851

SECTION 3.—COMMUNICABLE DISEASES.

The following table gives the notified cases of communicable diseases with deaths resulting therefrom:—

Diseases.	Cases.	Deaths.	Diseases.	Cases.	Deaths.
Chicken-pox ..	5,713	4	Mumps ..	502	2
Cholera ..	63	50	Pulmonary TB ..	2,278	701
Diphtheria ..	193	31	Plague ..	Nil	Nil
Dysentery ..	4,347	709	Small-pox ..	135	21
Enteric ..	3,377	581	Whooping Cough ..	623	37
Measles ..	2,637	7			

These figures include cases and deaths that occurred within the Municipalities of Colombo, Kandy and Galle.

Cholera.—There were 3 outbreaks of cholera. The first outbreak occurred in Trincomalee town early in January. There were 11 cases with 4 deaths. The second outbreak occurred in the same month in Mannar, Madawachchiya and Murunkan areas. In this second outbreak there were 36 cases with 33 deaths. The third outbreak occurred in February, in the Bandarakoswatta area (North-Western Province), where there were 10 cases with 9 deaths. Besides these three outbreaks, there were 6 sporadic cases confined to the Eastern and the North-Central Provinces, of which 4 proved fatal.

Smallpox.—The first case was an imported case in April, in Colombo. A serious outbreak occurred in Nawalapitiya in August. The infection was introduced by a recent arrival from

India. In this outbreak which started on August 5, there were 76 cases in Nawalapitiya and the surrounding area, 6 in the village of Morape, 9 in Udhentenna, 29 in Ulapane, 5 in Kubantariyawatta and 4 in Thambitigalla. The last case in the Nawalapitiya area was in November. Six cases of smallpox occurred in Colombo during the end of August and early in September. The source of infection of these cases has not been definitely traced.

Plague.—There were no cases of plague in the Island during 1943.

Immunization :

	Anti-Typhoid.		Anti-Small-pox.
1st dose ..	.. 122,019	Primary ..	.. 196,131
2nd dose ..	.. 93,986	Secondary ..	.. 143,392

The number of primary vaccinations represent 88 per cent. of the previous year's births. Fifty-two Sanitary Assistants have obtained their certificates of competency in vaccination, making a total of 434 Sanitary Assistants who have qualified themselves for the certificate. The total of 339,523 primary and secondary vaccinations includes 116,982 vaccinations done during the outbreak of smallpox at Nawalapitiya.

HOOKWORM.—Mass hookworm treatment was suspended in the schools and villages during the whole year and on the estates for nine months owing to the shortage and non-availability of castor oil and Magnesium Sulphate. The number of treatments given was 813,233 which represents mostly institutional treatments. The Anti. Dispensers were employed on emergency food control work and in other Institutions in the Department during the period of suspension of treatment. Twenty-two Sanitary Assistants, 4 Public Health Nurses and 2 Estate Dispensers were given certificates of competency in Hookworm Treatment.

YAWS.—There were 1,529 known infective and 5,164 non-infective cases during the year. The number of injections given was 3,138. At the end of the year there were 831 known infective, 5,369 non-infective cases, and 493 cases were not tracable.

FILARIASIS.—There were 1,280 known cases of filariasis in 247 villages. Pistia plants were removed from 106 out of the 223 localities in which this plant was reported to be growing. A report on the investigation work at Bandarakoswatta has been submitted.

TUBERCULOSIS.—The number of beds in Tuberculosis Institutions was increased by the addition of 30 beds at Kandana and 40 beds at Kankesanturai and there are now in all 560 beds. The number of patients treated in the 3 T. B. Sanatoria were:—

	Males.	Females.	Total.
Chest Hospital, Ragama ..	.. 1,049	.. 354	.. 1,403
Sanatorium, Kandana ..	.. 127	.. 78	.. 205
Sanatorium, Kankesanturai ..	.. 169	.. 80	.. 249

At the Anti-Tuberculosis Institute, Colombo, 7,603 patients were treated as out-patients. The chest clinics at Jaffna and Kankesanturai had an attendance of 1,255 and 411 respectively. A chest clinic was started at Galle on February 11, 1943, and the total attendance at the clinic was 758.

Of the three officers trained in T. B. in 1943, one was appointed to carry out a survey in the Kotte area, another to Galle to organize the chest clinic there and to develop T. B. work in the Southern Province and the third was appointed to Kankesanturai to relieve the officer there to go on a study tour.

The Departmental Committee held one meeting during the year under review.

The construction of T. B. Booths by the Department for the Home Isolation of cases was started for the first time during the year. A total of 26 T. B. Booths were constructed during the year.

VENEREAL DISEASES.—In spite of the difficulties caused by the war, satisfactory progress has been made during the year under review. Twenty-two clinics of which 13 are under trained officers are functioning. Venereal diseases work is also being carried out by Medical Officers in charge of Hospitals and Dispensaries. The work in the clinics has gone on fairly smoothly and the clinics are becoming more popular. Follow-up work has been started in practically all the clinics in the Island and the work in this direction especially in Colombo is now progressing very satisfactorily. The following is a statement of the venereal disease cases treated:—

	1942.	1943.
First visits ..	.. 7,939	.. 10,440
Subsequent visits ..	.. 41,647	.. 76,993
Total ..	49,586	87,433

Drugs and equipment are sufficient for the clinics now functioning. Owing to curtailment of travel and military duties, the Surgeon, i.c., Venereal Diseases Clinic, Colombo, could not visit the outstation clinics as expected of him. Proposed buildings for new clinics could not come up for want of materials.

Seven Officers were trained during the year at the General Hospital Clinic.

The Venereal Diseases Regulations, 1942, making it incumbent on Doctors to report cases of gonorrhoea in the female were amended to include males as well, and other venereal diseases besides gonorrhoea. The amended regulations were gazetted on October 15, 1943, and are now in force. They have better provision for getting patients treated.

A meeting was held on December 24, 1943, at which all matters connected with venereal diseases work were discussed. It was decided to open 10 clinics during 1944, and to carry out more propaganda work in addition to distribution of pamphlets, talks and cinema demonstrations which are already being done. As it was found difficult to get newspapers to publish venereal diseases advertisements it was resolved to have these published in the vernacular weeklies and monthly magazines having a popular appeal.

LEPROSY.—The work in the Leprosy Hospitals and by the Field Organization has been progressing satisfactorily in spite of difficulties caused by the scarcity of food and reduced rations. Anti-leprosy work during the year was done, (1) in the 2 Leprosy Hospitals at Hendala and Mantivu, (2) in the 24 out-door clinics attached to Civil Hospitals and Dispensaries, and (3) by the Field Organization, controlling and observing the non-infective cases and contacts.

There were 1,090 cases scheduled to the 2 Leprosy Hospitals at the end of 1943, which is made up of 906 segregated, 121 absconders and 63 on leave. Of these, 305 were neural and 785 lepromatous. During the year, 112 were admitted to Hendala and 25 to Mantivu. At Hendala, there was an epidemic of bacillary dysentery and 63 patients were affected with no deaths.

At the Leprosy Hospitals, the past year was one of great activity in vegetable gardening. Other activities have been carpentry, tinkering, rattanining, animal husbandry and weaving.

During the year, there were 24 clinics operating in the endemic areas. There were 1,471 cases scheduled to all these clinics, of whom 932 were for observation and 389 for treatment. The number of clinics held were 660 and the total number of treatments given were 5,447.

In the field, 195 fresh cases were detected as compared with 180 in 1942, 248 in 1941 and 333 in 1940. Of these, 101 were neural and 94 lepromatous. 2,777 cases and 9,974 contacts were seen by the Field Officers during their visits to 5,260 houses. 20,370 school children were examined in 126 schools and 5 cases were detected. 262 village talks and 145 school talks were given.

The Departmental Committee on Leprosy held one meeting at Mantivu during the year. Conferences were held at the offices of the Medical Officers of Health and Field Medical Officers to discuss the leprosy problem in their respective areas.

During the year, one Medical Officer was sent for a refresher course for 6 weeks under Dr. Cochrane, at the Lady Willingdon Leprosy Sanatorium.

The total number of living cases of leprosy which showed a decrease in number since 1941, maintains this downward trend. The whole Island is now under the organized scheme of leprosy control.

SECTION 4.—HYGIENE AND SANITATION.

The high cost of labour and the difficulty experienced in obtaining cement have adversely affected the progress of construction of wells, latrines and drains.

Water Supply.—254 private and 18 public wells were constructed. Fifty-three towns have pipe-borne water supplies of which 12 are in Urban Council towns and 41 in Sanitary Board towns. Three towns augmented their supplies; 27 towns have worked out new schemes of water supply. 384 samples were examined bacteriologically and 47 showed evidence of pollution. Sixty-four samples were examined chemically of which 26 showed evidence of pollution.

Disposal of Excreta.—The total number of new latrines constructed was 4,231, made up as follows:—Deep pit 3,133; with outside pit 108; and bucket latrine 930. 267 old pit latrines were converted to sanitary type. 44 old pit latrines were converted to bucket latrines. 45 water seal squatting plates were installed. 46 old bucket latrines were converted to sanitary type.

Drainage.—92,186 feet of cement drains were constructed.

Licensed and Offensive Trades.—There were 13,022 licensed trades, all of which have been inspected. Of these 3,973 were radically improved. Of the 159,724 defects found 105,410 were corrected. There were 4,664 offensive trades. Out of 5,360 nuisances created 717 were abated.

Anti-fly Measures.—103,648 breeding places were found of which 87,425 were dealt with.

Food Sanitation.—64,925 head of cattle were inspected and 61,971 were passed fit for slaughter. Of the 20,809 goats inspected, 19,481 were passed fit for slaughter.

Milk Supply.—849 milk samples were analysed out of which 458 were found adulterated. A representative committee appointed by the Honourable the Minister for Health to survey the possibility of augmenting the milk supply submitted a comprehensive report.

Rural Sanitation Scheme.—In 2,324 villages carrying out the Rural Sanitation Scheme—

43,599 dwellings were provided with vegetable gardens.

43,199 with boiled-water for drinking purposes.

28,931 with windows.

28,153 with compost pits for refuse.

45,279 with permanent latrines.

2,269 with temporary latrines.

Estate Sanitation.—There were approximately 2,300 estates scheduled under the Medical Wants Ordinance (Cap. 176). The staff for Health Work consisted of the same officers as mentioned in my last year's report.

There were 68 hospitals and 116 dispensaries maintained by Government in Estate Medical Districts. In addition, there were 99 Estate Hospitals and 735 Estate Dispensaries. All Estate Hospitals were inspected during the year for rebate purposes. The 735 Estate Dispensaries served 1,561 estates. 233 Estate Dispensaries were inspected during the year. The estate

medical attendants consisted of 3 qualified Medical Officers, 4 Indian qualified Medical Officers but not registrable in Ceylon, 2 qualified Apothecaries and 688 approved Dispensers. 617 estates were inspected. Sanitary conditions of 7 per cent. of these estates were very good, 46 per cent. good, 36 per cent. fair, 8 per cent poor and 3 per cent. bad. Ninety-nine of these estates were fully provided with sanitary dust bins and 143 partly. 459 of these estates had non-overcrowded lines, 87 slightly overcrowded and the balance 71 had overcrowded lines. Of the 84,227 line rooms inspected, 70,522 were up to Government standard. In the estates inspected there were 16,744 pit, 1,393 water-borne and 9,197 bucket latrine compartments. 1,158 latrine compartments were further required. 439 of the estates inspected had sufficient number of latrines, 156 insufficient and 22 had no latrines. Thirty-six estates had sanitary conveniences for children provided fully and 66 partly. 409 estates had entirely protected supplies of water, 134 partly protected and 74 unprotected supplies. Anky. treatment on estates was recommenced in August, 1943. 110,300 persons were treated on 391 estates.

On all estates there were 266 registered midwives serving 410 estates and 23 unregistered midwives serving 35 estates. In addition 129 estates were served by other registered midwives not employed on estates. 677 estates had creches and 465 estates were supplying cooked meals to children. 189 estates had Maternity Wards and 28 estates had lying-in rooms attached to estate lines. Fifteen estates had clinics provided and 68 other estates served by outside clinics. 34,363 persons in 1,357 estates were vaccinated against smallpox; 28,830 of them were successful, 3,396 unsuccessful and 2,137 cases were unknown. Eighty-seven estates were visited for Anti-typhoid inoculations; 14,820 first doses and 10,768 second doses were given. 343 visits by Inspecting Officers and 2,044 visits by Sanitary Assistants were paid to estates in connection with communicable diseases.

Twenty-one estate schools were medically examined. Of the 609 children examined, 313 were defective. Of the 408 defects found, 204 were corrected.

SECTION 5.—MATERNITY AND CHILD WELFARE.

The work was extended by the appointment of 30 midwives and by the establishment of 18 Maternity Homes, and 7 Health Centres in rural areas. A Public Health Nurses' training class was commenced during the year and the number of officers in training was four.

The following is a statement in regard to work done:—

No. of Health Centres ..	..	..	444
No. of Clinics held ..	..	..	15,655
Expectant mothers under care ..	..	..	153,046
Infants under care ..	..	..	83,395
Pre-school children under care ..	..	..	71,179
Deliveries by Departmental Midwives ..	..	..	59,355
Deliveries in Hospitals and Maternity Homes ..	..	..	26,526
Home visits by Public Health Nurses ..	..	..	93,554
Home visits by Public Health Midwives ..	..	..	230,060

SECTION 6.—SCHOOL HEALTH WORK.

The following figures show the work done:—

No. of schools taken for medical inspection ..	..	..	1,416
No. of students medically examined ..	..	..	78,493
No. of scholars defective ..	..	..	50,418
No. of defects found ..	..	..	112,711
No. of defects corrected ..	..	..	46,312

In 3,010 schools the special scheme of Health Education was in operation. 2,645 schools were provided with mid-day meals and the amount spent for the purpose was Rs. 1,674,001.

SECTION 7.—HEALTH EDUCATION.

Health education and propaganda was carried out on the same lines as in previous years. 172 lectures illustrated with lantern slides, 2,870 lectures without lantern and 74 cinema shows were held. The number of Health Exhibitions held was 165. The number of talks given in schools, villages and clinics by officers working in the field was 77,807. There were 1,830 staff conferences and 681 conferences with others held throughout the Island. The number of Health Leagues functioning was 149 and their total expenditure for Health Work was Rs. 15,504.51. The All-Island Health Week in July has now become a prominent feature of the activities connected with health education and was a great success this year too. Three issues of "Health News" were published. A new health demonstration van was constructed to replace the old van which was condemned. It has been fitted with new models, posters, a radiogram, microphone and a wireless set. Both the van and the cart are doing good work in the rural area. "Diet in War Time" was emphasised in a series and radio talks on health. Forty-eight radio talks were delivered. An intensive publicity scheme in connection with the control of venereal diseases was launched and is being actively carried out.

SECTION 8.—NUTRITION.

School children in various parts of the Island were examined with a view to determining the incidence of the signs of malnutrition. The incidence of signs of malnutrition and the diets of outstation school children were compared with those of Colombo children. Ulcer cases on an estate at Mawarella were investigated from a dietetic point of view.

Much assistance was given to the Food Commissioner on various matters connected with foods and rationing.

Diets of A. R. P. workers were investigated and recommendations made for their improvement. Assistance was given on the suitability of the C. R. N. V. R. diets and on a diet for a State Farm. Reports were prepared on the diets of the General Hospital, Leper Hospital and Badulla Prison and on the use of Calcium and Iron Salts at clinics. Assistance was given on the supplementing of the mid-day meals of school children.

Various foodstuffs were examined and reports submitted on their suitability for consumption.

The Vitamin "A" content of samples of Shark Liver Oil was determined. An extract of yeast was prepared and used therapeutically at the Lady Ridgeway Hospital.

A circular on manioc poisoning was prepared and circularized and samples of vomit from suspected cases of poisoning were examined.

Calcium balance experiments were done. Vitamin "C" contents of some local fruits and the available H. C. N. from various yams and beans were determined.

The Fluorine content of samples of water was determined with regard to fluorosis.

Blood examinations were carried out in malnourished children. Lectures were given to Medical Students, Probationary Divisional Revenue Officers, Sanitary Learners and two Field Medical Officers. Talks were given to teachers and soldiers undergoing training in Rural Science.

Much assistance was given to the Service Authorities on propaganda with regard to food.

SECTION 9.—MALARIA.

A mild epidemic of malaria involving parts of Western, North-Western, Sabaragamuwa and Central Provinces occurred during the year and lasted from March to June.

This epidemic was much less extensive than that of 1939, and was restricted to certain localities in the Northern intermediate and the Northern part of the wet zone. It occurred before the 5th year cycle and the area affected was nearly the same as in 1939, but in intensity was less.

Thanks to the excellent organization that now exists after the inauguration of the Malaria Control Scheme in 1937, the epidemic was brought under control within a space of 4 months with little loss of life.

Apart from the emergency oiling of rivers and streams where extensive breeding of *A. Culicifacies* was taking place, disinsectisation of houses in villages badly affected was carried out. Adequate medical facilities were provided for the treatment of the sick by increasing the number of treatment centres and establishing quinine distribution centres wherever necessary.

Medical comforts such as Malted Milk, Barley, Sugar and Tea were provided in areas where distress was acute.

For further reference to Anti-Malaria work please see sections under Medical Entomology, Sanitary Engineering, and Anti-Malaria Campaigns.

SECTION 10.—MEDICAL ENTOMOLOGY.

This work can be classified under the following headings:—

(a) *Teaching*.—About 50 lectures and demonstrations (field and laboratory) on Medical Entomology with special reference to malaria and the Anopheline Mosquitoes were given to members of the Fighting Services, Medical Students, Laboratory Assistants and Sanitary Learners at the Colombo Laboratory. At the Kurunegala Field Training Centre 16 courses in Entomology from 1 to 6 weeks' duration were given to 75 persons, chiefly of the Fighting Services, Field Medical Officers of the Department and Sanitary Assistants.

(b) *Malaria Control*.—The work mainly consisted of investigations carried out under the scheme for fore-casting and preventing malaria epidemics in South-Western and Central Ceylon and to Entomological investigations associated with the control measures at the Malaria Campaign centres:

(i.) *Prevention of Malaria in South-Western and Central Ceylon*.—The Entomological investigation work forms the basis of the malaria Control activities throughout the South-Western lowlands and the Northern and Eastern hill country and constitutes one of the chief lines of work of the division. At the end of the year, 330 observation sites were in existence throughout the extensive area of approximately 7,500 square miles involved. Of these 45 were observation stations where extensive Entomological work was done and 285 were subsidiary observation stations where larval dipping only was undertaken.

All materials collected were examined at the Colombo and Kurunegala laboratories and the findings reported to the Superintendent, Anti-Malaria Campaign, and the Field Medical Officers in charge of these areas. These investigations involved nearly 4,500 hours of trapping and the examination for mosquitoes of over 30,000 dwellings and 45,000 potential breeding places and in the laboratories the identification of approximately 46,000 Anophelines and 210,000 Anopheline larvae and the dissection of nearly 21,000 mosquitoes. Only seven Anopheles (all *A. Culicifacies*) were found infected with malaria parasites during the year.

Indicator maps showing at any given time the extent of breeding of *A. Culicifacies* in the rivers and streams in the malaria epidemic zone, the distribution of the carrier and the localities where control action was taken were maintained.

In the zonal areas under consideration, *A. Culicifacies*, the chief malaria carrying mosquito in Ceylon, showed a definite increase in prevalence as compared with the previous year and was associated with a minor epidemic of malaria lasting from March to June.

(ii.) *Investigation at Malaria Campaign Centres.*—Field Assistants of the division were attached to the staffs of the Medical Officers in charge of the Malaria Campaign Centres at Chilaw, Puttalam, Anuradhapura and Kurunegala. Their work was closely associated with the malaria control activities and comprised 2 main series of investigations: (a) Comparative investigations into Anopheline prevalence in the protected and control zones and outside zones; (b) Routine checking of the work of oiling gangs with a view to estimating the results of this work and of maintaining a high standard of efficiency.

(c) *Mosquito Surveys.*—Investigations involving mosquito surveys of special areas were undertaken for various authorities and reports were submitted concerning control measures. Work of this type was done at Anuradhapura, Alawwa, Kaduwela and Negombo.

(d) *Rat Flea Surveys.*—Surveys were carried out in collaboration with Medical Officers of Health at Galle, Anuradhapura, Weligama, Matale and Kurunegala.

In all 310 premises, mostly commercial, were examined and 731 rats were trapped. These yielded 1,901 fleas of which 66.7 per cent. were *Xenopsylla Cheopis*, 33.2 per cent. *X. astia* and 0.1 per cent. *Chenocephalides canis*.

X. Cheopis was most prevalent at Matale, where it formed 82 per cent. of the fleas caught and gave a specific rat flea index of 4.0; these figures are among the highest ever obtained in Ceylon and are comparable only with those previously found in localities where epidemics were in progress.

The position was considered dangerous and immediate introduction of vigorous preventive measures were recommended.

(e) *Fly Nuisance.*—Investigations into several cases of fly nuisance reported by Officers of the Department were carried out. *Musca Vicina* was the most prevalent species.

(f) *Research.*—On behalf of Naval Authorities the Medical Entomologist carried out field investigations associated with malaria, filariasis and scrub typhus, the results of which were duly reported.

In collaboration with Surgeon-Lieutenant Commander Wedd, R. N. research on certain types of chest disorders was carried out. Mites (acarine) of various types were found in the sputum of several of the cases, some of whom had a massive Eosinophilia associated with symptoms indicative of Tuberculosis and Chronic Bronchial Asthma.

It was considered probable that the chest condition known as "pseudo-tuberculosis", "tropical eosinophilia", &c., the aetiology of which has hitherto been regarded as obscure, was due in part at least to the infestation by mites of the Respiratory System.

Research on the eggs of the indigenous Anopheline Mosquitoes and on the larvicidal action of mineral oils was also undertaken.

SECTION 11.—SANITARY ENGINEERING.

Emergency River Oiling.—Owing to the extensive breeding of *A. Culicifacies* in the rivers and streams in the intermediate zone, emergency oiling of rivers was undertaken on a wide scale. 89,548 gallons of oil were used in oiling 7,000 miles of streams. The cost of the oiling amounted to Rs. 79,224. As a result of these preventive measures promptly adopted, the outbreak of malaria which was assuming epidemic proportions was controlled within a space of four months.

Difficulties experienced in the transport of Malaria oil due to shortage of transport barrels and the reduction of Railway mileage were overcome by transporting Malaria oil by lorry to centres within 50 miles of Colombo.

This division was also actively engaged during the year in the construction of 13 Maternity Homes of which the following at Beragama, Angunukolapelessa, Hiripitiya, Alawwa and Bowatta have been completed.

The construction of 28 Rural Hospitals was also in progress.

SECTION 12.—ANTI-MALARIA CAMPAIGNS.

The anti-malarial work of the division can be classified under the following headings:—

- (a) *Anti-Malarial Campaign Centres* in towns such as Anuradhapura, Chilaw, Kurunegala, Badulla and Puttalam.
- (b) *Agricultural, Colonization and Irrigation* Constructional works such as at Minneriya, Minipe, Ridibendi-ela, Parakrama Samudra, Paranthan-Kilinochchi, Kottukachchiya, Tabbowa, Wariyapola Experimental Station, Kagama and Polonnaruwa. In these areas which are located in dry zones disinsectisation was the chief measure adopted in malaria control. Minor filling of breeding places of mosquitoes was also undertaken.
- (c) *Malaria Control in Rural Areas.*—A start was made in the control of rural malaria in Wellawa, Alawwa, Galgamuwa, Wariyapola, Bingiriya, Pallai, Chavakachcheri, Hiripitiya and Madurugoda villages.
- (d) *Railway Sanitation.*—Seasonal disinsectisation for the protection of the Railway staff at some of the stations located in malarial areas was undertaken with very gratifying results. The cost was borne entirely by the Railway Department.
- (e) *For Imperial Authorities.*—The control of malaria was undertaken by this division in 1942, at various camps of the Army, Navy and Air Force and this was subsequently taken over by them except for 3 or 4 places. The cost is met by the Imperial Authorities.

SECTION 13.—A. R. P. WORK—CASUALTY WORK BY MEDICAL OFFICERS OF HEALTH AND FIELD MEDICAL OFFICERS.

Two Medical Officers of Health and one Medical Officer of this Department have been seconded for service in the Civil Defence Scheme of the Island. One has been officiating as A. R. P. Controller for the City of Colombo and suburban areas, another is the Deputy Chief Casualty Officer for Colombo and the third is the Casualty Officer, Colombo. The Medical Officers of Health and Field Medical Officers are in charge of the casualty services established in their areas under the Civil Defence Scheme and have been doing this work in addition to their normal duties.

SECTION 14.—MOBILIZATION AND SECONDMENTS FOR MILITARY SERVICE.

In addition to the Officers mobilized in 1942, one Medical Officer on the permanent establishment, one Honorary House Officer and two Acting Medical Officers were mobilized during the year 1943.

SECTION 15.—WORK DONE IN HOSPITALS, DISPENSARIES, &c.

(a) *Hospitals*.—Two new hospitals were completed and declared open bringing the total number of hospitals at the end of 1943, to 134 with a total of 12,209 beds. The total number of in-patients was 217,054 and the number of deaths was 21,953. Considerable difficulty was experienced in the dieting of patients in hospitals and also in connection with transport.

(b) *Dispensaries*.—Three new central dispensaries, two branch dispensaries and 22 visiting stations were opened and one branch dispensary was closed down. At the end of 1943, there was a total of 270 central dispensaries, 179 branch dispensaries and 397 visiting stations. The total number of patients treated at these dispensaries as well as in the out-patients' departments of the hospital was 5,695,588.

(c) *Special Hospitals* : (i.) *Mental Hospital*.—The accommodation provided was 2,281 beds. The daily average number of patients for the year was 2,621. The number of certified patients admitted during the year was 528 and the number admitted to the House of Observation was 1,255. The number of certified patients discharged was 459 and uncertified 381. There were 668 deaths. The disease that caused most deaths was dysentery which accounted for 343 deaths.

(ii.) *Pasteur Institute*.—2,033 patients were treated during the year. Only one death occurred from hydrophobia after treatment. This patient did not complete the prescribed course of treatment. Sheep were used for the preparation of anti-rabic vaccine. 645 brains were examined microscopically for Negri bodies.

(d) *Civil Medical Stores*.—All medical supplies in connection with Civil Defence continued to be supplied by the Department. Essential medical supplies are now being secured on the lend/lease scheme and this Department assists in the distribution of supplies for private requirements in addition to dealing with the requirements of Government. Control of medical supplies under the Defence Regulations was entrusted to the Department during the year.

SECTION 16.—TRAINING OF MEDICAL AND HEALTH PERSONNEL.

Medical Officers.—Eight Medical Officers were trained in Public Health work. Three Medical Officers were trained for three months each and four others for a fortnight each in V. D. Work. One Medical Officer was sent to India to study methods of Medical Research and another on a tour of study to the T. B. Institutions in India. The three Medical Officers who were sent to Madras for training in Tuberculosis completed their course and returned in October. One Medical Officer spent 6 weeks in Madras Presidency undergoing a refresher course in Leprosy. Thirteen Medical Officers successfully completed a course of training in Malaria at the Malaria Field Training Centre, Kurunegala.

Pupil Nurses.—Forty-six new pupil nurses were taken on during the year bringing the total under training to 150 of whom 42 completed their training and were posted to different hospitals.

Nursing Sisters.—Seven nurses successfully completed the post graduate course of training for sisters and 10 others were taken on for the same course of training.

Public Health Nurses.—The 4 Public Health Nurses who were sent for training to Kalutara in October 1942, completed their training there. Three of them are now undergoing training in midwifery at the Lying-in Home, Colombo.

Midwives.—Seventy-nine midwives completed their course of training at Kalutara and Panadure Training Centres. 108 new midwives were taken on for training, making a total of 167 who are undergoing training as follows:—

Lying-in Home, Colombo and Ragama ..	..	129
Kalutara ..	..	17
Panadure ..	..	14
Jaffna ..	..	7

Ward Attendants.—Eighty-two males and 68 females out of 100 males and 100 females taken on for training in 1942 completed their course in January. An additional 19 females completed their training in June. The rest left the classes. 100 males and 100 females were taken on for training (one year course in February).

Apothecaries.—One Apothecary was trained in Public Health work.

Sanitary Assistants.—Eighty-five were taken on for training; of these 45 completed and 40 gave up studying and took to other work. Twenty-one Sanitary Assistants successfully completed a course of training in Malaria Field Training Centre, Kurunegala.

Others.—Apart from the Health Personnel, 19 Probationary Divisional Revenue Officers were given a course of training in the fundamentals of Rural Health, Malaria and Nutrition. Ten R. A. F. Personnel and 4 Medical Airmen were also trained in Malaria.

SECTION 17.—LABORATORY WORK.

(a) *Bacteriological Institute.*—A total of 141,105 bacteriological examinations were carried out during the year. 384 samples of water were examined bacteriologically. Forty-seven of these samples showed evidence of recent pollution.

(b) *Pathological Laboratory, General Hospital.*—At this laboratory 120,534 specimens were examined.

SECTION 18.—MEDICO-LEGAL WORK.

The Judicial Medical Officer and the Assistant Judicial Medical Officer, Colombo, examined 4,069 patients and held 436 post-mortem examinations. Seventy-four productions were microscopically examined and of these 62 were hair and 14 were blood stained articles.

Medical Officers at other stations held 1,355 post-mortems which included 491 cases of accidents, 267 of suicide and 427 of homicide. A total of 5,085 assault cases were examined out of which 1,697 were cases of grievous hurt. 397 other cases including 97 of rape were also examined.

SECTION 19.—MEDICAL BUILDINGS.

Absolute essentiality was the basis upon which all new buildings were provided for and consequently as no new works were sanctioned for this Department in the Annual Estimates, Supplementary provision had to be obtained whenever the need for any work was so pressing as to render its immediate execution necessary. As much progress is not being made with regard to the construction of new buildings at present on account of the war, peace time requirements are being carefully studied and kept in view and plans and estimates are being drawn up for future use. A scheme for the construction of Rural Hospitals has been introduced under which it is proposed to provide such hospitals in as many as possible of the areas in which Central Dispensaries are now functioning. The construction of 28 Rural Hospitals was commenced during the year.

SECTION 20.—QUARANTINE.

Port health work was carried out in Colombo, Galle and 14 minor ports. The following is a summary of the work at Colombo:—

Of vessels entering Colombo, 12 were infected. There was no fumigation of plague suspect cargo during the year 1943, as no rice comes from plague-infected ports after the loss of Burma. 587 Bills of Health and 5 Rat Certificates were issued. Forty-four ships were fumigated, 41 with HCN and 3 with SO₂. Deratization Exemption Certificates were issued to 36 ships. 1,337 cradles of soiled linen from ships were disinfected with steam, of which 5 were for the Military.

44,753 estate labourers and 145,901 passengers were passed to Ceylon through the Quarantine Camps at Mandapam and Thattaparai in South India. Of the passengers, 106,043 were passed without detention and 39,858 after full quarantine. 84,793 passengers and 44,845 estate labourers were vaccinated against smallpox and 39,409 labourers were treated for ankylostomiasis.

SECTION 21.—MEDICAL COLLEGE COUNCIL.

During the year 24 candidates qualified as Apothecaries, 14 as Pharmacists and 112 as Midwives.

SECTION 22.—FINANCE.

The Revenue and Expenditure for the financial year ended September 30, 1943, were Rs. 3,098,113.94 and *Rs. 15,661,819.58 respectively.

The financial statement of the expenditure of the administration of the Medical Wants Ordinance (Cap. 176) showed a surplus of Rs. 2,214,043.62 on September 30, 1942.

(*These figures do not include the cost of new buildings and improvements to and maintenance of existing ones.)

Colombo, August 18, 1944.

S. F. CHELLAPPAN,
Director of Medical and Sanitary Services.

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